

Operational Service Manual



Model Number: VM-750B

March 2008

Revision A



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Please note the “Serial number” of your vending machine in the space below:

Serial number _____

The serial number is located on the back of the vending machine on the identification plate.
The serial number is necessary to provide quick service and detailed parts information for your vending machine.

1 - INTRODUCTION

Congratulations on the purchase of your new vending machine. In this manual you will find information on how to setup, install, operate, and maintain your vending machine.

Specifications:

- Weight: 520 lbs
- Power: 110-120V 60Hz 2.5A
- Dimensions: 74"H x 33"W x 28"D
- Snack Capacity: 215 items
- Drink Capacity: Up to 173 items
- Selections: 19 snack bins and 6 beverage column selections
- Refrigeration: R134A CFC-Free
- Operation Temperature in degrees: 32F to 90F indoor use only
- Manufactured with UL certified components

The entire package includes:

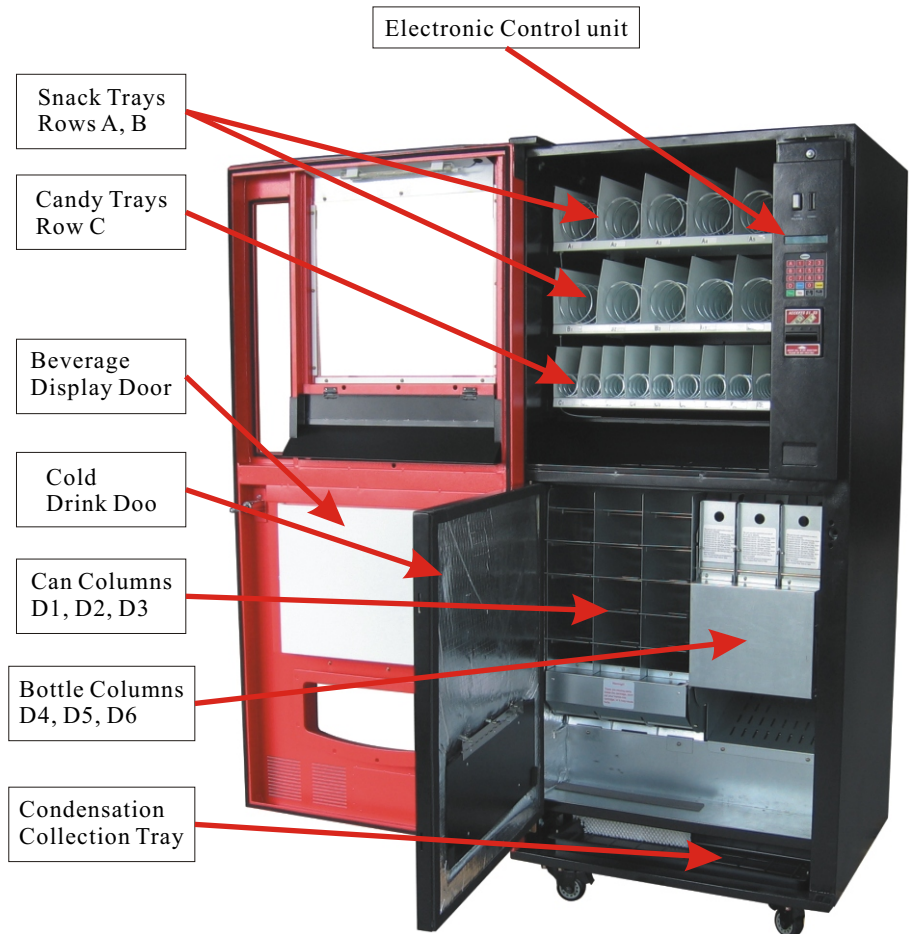
1. VM-750B vending machine
2. Operational service manual (*Mar. 2008, Revision A*)
3. Keys
 - a. The first key is used for the "front door", 3 keys are provided (*unique key*).
 - b. The second key is used for the "electronic control unit", 2 keys are provided (*standard key*).
 - c. The third key is used for the "back door", 2 keys are provided (*standard key*).
(*The back door allows easy access to the motors for the snack machine*).

Please note: We do not have extra copies of the keys for the "front door" of the vending machine. We ship out the vending machine with the original sets of keys. It is strongly recommended that spare copies of those keys are made just in case the originals are lost or damaged.

4. Price tag set for display
5. Small D4 spacer (*2 spacers*)
6. Large D5 / D6 spacers (*4 spacers*)
7. Knife
8. Packing list
9. Quick start instruction guide

2 - INSTALLATION

2.1 - Components of the machine



2.2 - Unloading the vending machine

NOTE:

Unless this service is provided by Gaines, you must have two persons to perform the Unloading process.

1. Remove the cardboard shipping box from the vending machine (*do not use razor*).
2. Using a screwdriver or power tool, remove Phillips head screws securing 2 long metal plates on both sides of the wooden skid (*Figures 2 and 3*).
3. With one person holding on the left side, the other person should tilt the machine upward from the right side. When the vending machine is tilted sufficiently upward, remove the right side wood skid by pulling firmly on the skid (*Figure 4*).
4. Gently lower the machine, it will sit on its own wheels. With one person holding the right side, the other person should tilt the machine upward from the left side. When the vending machine is tilted sufficiently upward, remove the left side wood skid by pulling firmly on the skid (*Figure 5*).
5. Gently lower the machine onto its wheels (*Figure 6*).
6. Reach into the snack section via the black door that says “Push” and remove the bag of keys.
7. Using the proper key, open the main door and remove all plastic packing material over the snack tray coils, and remove the white Styrofoam containing the D4, D5, and D6 spacers located at the bottom of the cold drink section.



Figure 2 Remove metal plates



Figure 3 Remove metal plates



Figure 4 Tilt upward and remove skid



Figure 5 Tilt upward and remove skid



Figure 6 Gently lower machine

2.3 - Location

CAUTION:

If the machine is tilted more than 45 degrees during installation, you must keep the machine unplugged from the power outlet for 12 hours before plugging the machine back into the power outlet. Not doing this could damage the refrigeration unit and void the warranty.

1. This vending machine is intended for indoor use only.
2. Select an area to place the machine that is near a power outlet.
3. Leave a minimum of at least one inch of space from the wall. The refrigeration unit must have good air circulation.
4. Insert the front door lock key and turn clockwise; the handle will pop out (*Figure 7*). Then turn the handle counter clockwise until the door opens.

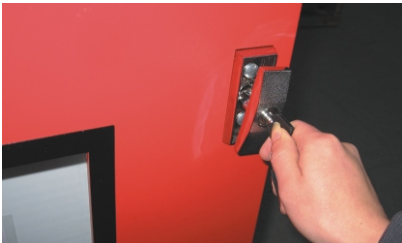


Figure 7 Insert key and turn handle

2.4 - Power

It is recommended that a surge protection device be utilized. Single outlet surge protectors (*Figure 8*) or multiple outlet surge protectors (*Figure 9*) are generally available at hardware stores, Radio Shack, electronics retailers, or manufacturers like Prime Wire and Cable (primewirecable.com)

1. Plug the machine into a 110 VAC outlet with surge protection.
2. It is NOT recommended to use an extension cord. If an extension cord is needed, it must be a 16-gauge three-wire type.
3. Depending on the local climate, it will take about 24 hours for the machine to reach an operating temperature of 38-45 degrees F.

Model # VM-750B



Figure 8



Figure 9

3 - ELECTRONIC CONTROL SYSTEM

There is a service mode button in the electronic control unit (*Figure 10*). When it is pressed firmly and continuously for 3-4 seconds, the system will switch from sales mode to service mode. While in service mode, just press the “Cancel” button a few times on the front keypad (*Figure 11*) to come back to sales mode. Notes to some keys:

“Enter”----- Enter submenu or confirm;

“Cancel”----- Return to upper menu option or sales mode;

“Up”-----Scroll up

“Down”----- Scroll down

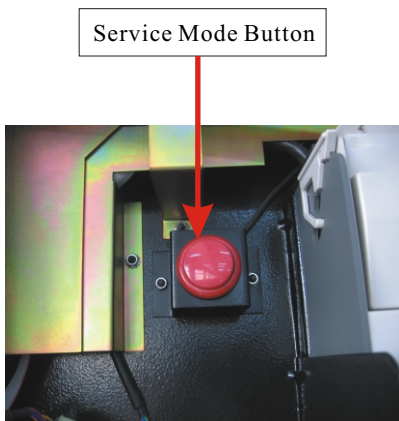


Figure 10 Service Mode Button



Figure 11 Front Keypad

Model # VM-750B

Service Mode Menu list

Menu list			Descriptions
Display	Show Info	Total Cash Total Cash: \$.00	Total accepted value
		Total Sales Total Sales: \$.00	Total sales value
		Total Vends Total Vends 0	Total number of vends
		Clear All Data And Reset Bin Quantity?	Clear previous data and reset bin Qty.
	Review Bin Qty	Review Bin Qty Bin: A1 Qty: 8	Set bin Qty
	Review Bin Prices	Review Bin Prices Bin: A1 \$.75	Set bin price
	Empty Bin	Empty Bin	Set empty bin
Setup	Controller	Set Defaults	Factory setup
		Set Bin D4	Set Bin D4
		Set VM Type	Set-up machine type
	Motor control	Add Motor Ctrl	Add slave board
		Clear Motor Ctrl	Remove slave board
		Set Mach Type	Set slave board type
		Set Serial #	Set serial # for slave board
Test	Coin Mechs	Money \$.00 A-25c B-10c C-5c	Test bill acceptor/coin acceptor and coin changer, show coin value remained in the changer/ empty coin changer
	Key pad	Testing Keypad	Keypad testing
	Sold Out	Sold Out SO Bin:D1 Enso	Sold-out sensor testing
	Motor	One Bin	Individual motor testing (one turn)
		One Bin Cont.	Individual motor testing (continuous)
		All Bins	All motor testing(one turn)
		All Bins Cont.	All motor testing (continuous)

4 - CONFIGURING THE VENDING MACHINE FOR SALES

In order to get the machine ready for sales, the following must be done.

1. Load snack and beverage products.
2. Display drinks in display door behind window.
3. Load coins into coin changer.
4. Set snack bin and beverage column prices and apply price tags.
5. Clear System Memory after coins and product stocking/refilling.

4.1 - Loading Chips, Snacks, Candy, and Beverages

To begin loading products into the product bins:

1. Make sure the main front door is fully opened.
2. Cut the 12 zip ties (6 via front door, 6 via back door) that secures the wheels of the three product trays (*Figure 12*).
3. Hold the white lever down (*Figure 12*) and pull the product tray towards you.
4. The product tray will tilt downward for easy product loading (*Figure 13*).
5. Load the products correctly in between the coils on the product tray (*Figure 14*).
6. After products are correctly loaded, tilt the product tray upwards and push it back into the original position.

Please note the following snack capacities for each row of bins:

1. Rows A1-A5 can hold up to 8 snacks per row ($5 \text{ rows} \times 8 \text{ snacks} = 40 \text{ snacks}$)
2. Rows B1-B5 can hold up to 8 snacks per row ($5 \text{ rows} \times 8 \text{ snacks} = 40 \text{ snacks}$)
3. Rows C1-C9 can hold up to 15 snacks per row ($9 \text{ rows} \times 15 \text{ snacks} = 135 \text{ snacks}$)

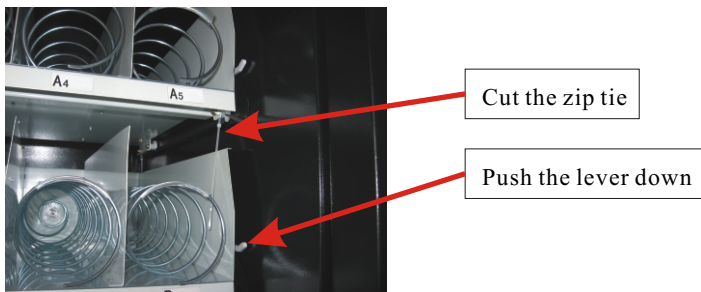


Figure 12 Zip tie and lever



Figure 13 Pull the tray towards you.

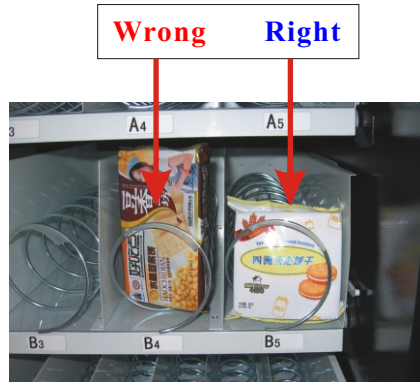


Figure 14 Proper way to load product

Beverage Column Capacities:

1. There are three columns for 12oz. cans (D1, D2, and D3), one column for 16oz. plastic bottles or 8.3oz. energy drink type cans (D4) and two columns for 16 or 20oz. Plastic bottles (D5 and D6)
2. Locations D1-D3 will hold up to 46 cans (12oz.).
3. Location D4 will hold up to 13 plastic bottles (16oz.) or 15 energy drink cans (8.3oz.).
4. Location D5 and D6 will each hold 11 plastic bottles (20oz.).

Beverage Loading instructions:

NOTE: IMPORTANT

Loading instructions for the beverage columns must be followed for the machine to vend properly.

FOR COLUMNS D1-D3:

1. The 12oz cans may be loaded in any either direction (Figure 15).
 - a. Load the first 6 cans in the “bottom” 1st ramp of D1, D2, and D3.
 - b. Then load 1 can in the 2nd ramp of D1, D2, and D3.
 - c. Then load 1 can in the 3rd ramp of D1, D2, and D3.
 - d. Then load 1 can in the 4th ramp of D1, D2, and D3.
 - e. Then load 2 cans in the “top” 5th ramp of D1, D2, and D3. order.
2. Then load each ramp of D1, D2, and D3 to full capacity in any order.

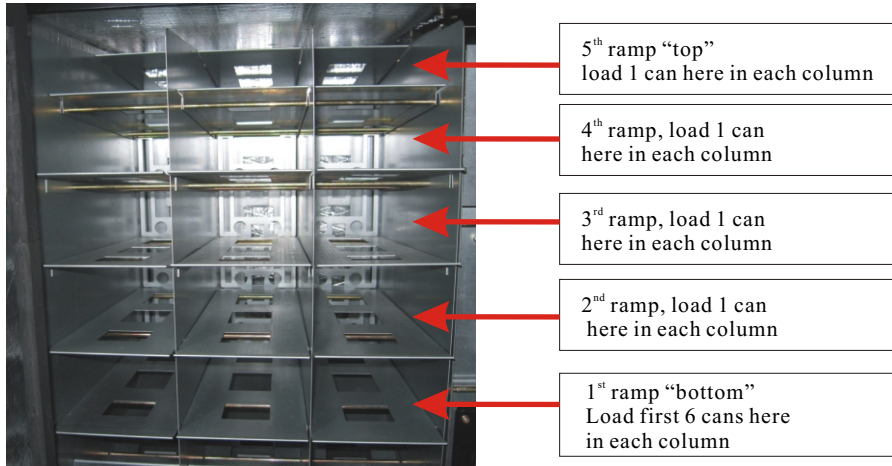


Figure 15 Locations D1 D3 of Beverage section

FOR COLUMNS D4-D6:

1. The plastic bottle drink columns have two sections (front and back).
 - a. Open the D4, D5, D6 access doors by pulling “up” then “out” (Figure 16).
 - b. Pull the internal divider towards you to access the “back” section (Figure 17).
 - c. Fill the “back” section first to full capacity (Figure 18).
 - d. Push the divider closed and load the “front” section to full capacity (Figure 19).
 - e. Close the access doors by pulling up, pushing in place, then pushing down.

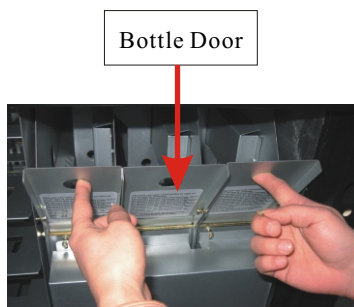


Figure 16 Pull bottle door “up” then “out”.

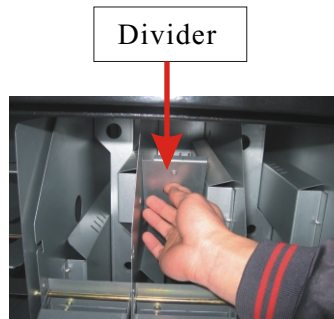


Figure 17 Pull divider toward you.

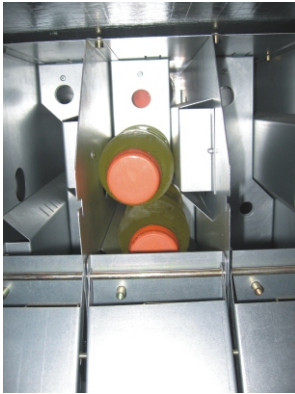


Figure 18 Fill back section first with cans or bottles in any direction

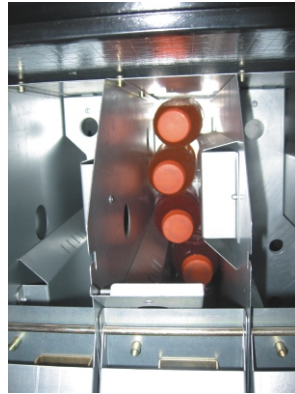


Figure 19 Fill the front section last

2. For locations D4-D6, different sizes of plastic bottles and cans may be loaded;
 - a. For D4, see list of examples of acceptable energy drink cans and 16 oz water /beverage bottles below
 - b. For D5 and D6, see list of examples of acceptable energy drink cans and 16/20 oz soda/ beverage bottles, on the next page.
 - c. To load short cans or bottles, spacers must be inserted in the front and back sections. D4 uses a thin spacer, D5 /D6 uses a wider spacer (*Figures 20, 21 and 22*).

Refer to the spacer insertion and product-loading page, following later in this section.

D4

8.3 oz Beverages	16 oz Beverages
Red Bull can 8.3 fl oz (need spacer)	Lipton Tea 16.9 fl oz
Dole Juice can 8.4 fl oz (need spacer)	Propel Fitness Water 16.9 fl oz
	Poland Spring Water 16.9 fl oz
	Kirkland Spring Water 16.9 fl oz
	Aquafina 16.9 fl. Oz
	Arrowhead Water 16.9 oz
Any similar brand 8.3 oz, 8.4 oz can	Crystal Geyser Water 16.9 oz Any similar brand 16.9 oz water

D5—D6

16 oz / 20 oz Beverages
Gatorade 20 fl oz (need spacer)
Vitamin Water 20 fl oz (need spacer)
Coca Cola brand soda 20 oz
Coca Cola brand soda 16 oz
Lipton Brisk 16.9 fl oz
Dole Juice 15.2 fl oz (need spacer)
Tropical Juice 15.2 fl oz (need spacer)
Minute Maid 15.2 fl oz (need spacer)
Nestea 16 fl oz (need spacer)
Nestea Nesquick 16 fl oz (need spacer)
Energy drink cans 16 fl oz (need spacer)

3. Spacer insertion and product loading:

Note: a flashlight is recommended to assist in locating the proper spacer slots.

1. Select a can or bottle sample which you wish to fill the column with, and hold it against the front of the column. Make note of the first spacer slot closest to the top of your can or bottle sample (*Figure 23*).
2. Pull the column divider towards you to open the back section (*Figure 17, page 11*).
3. Slide the proper column spacer into the column using the finger hole and guide it into the rear section (*Figure 24*).
4. Slip the spacer into the three (3) slots (left side, right side, and bottom) that corresponds with the size of your can or bottle sample from step 1 (*Figure 25*).
5. Load your cans or bottles in front of the spacer until the rear column is full. Then push the section divider back into place (*Figures 26, 27 and 28*).
6. Slip the second spacer into the proper front column three slots (left side, right side, and bottom) (*Figure 29*).
7. Load your cans or bottles in front of the spacer. You will feel some resistance from the sensor flap as you push the cans/ bottles down into place (*Figure 30*).
8. Close outer door (*Figure 31*).
9. Cans or bottles that do not easily slide past the rectangular loading guides will not vend and can cause machine malfunctions. Always ensure your chosen can or bottle fits the column properly.

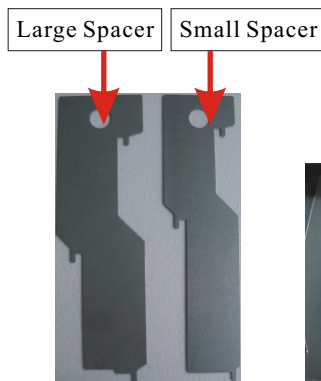


Figure 20 Spacer

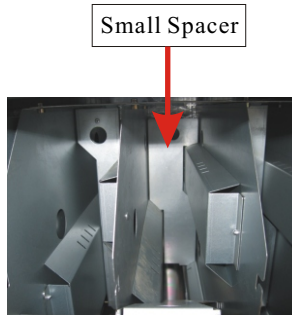


Figure 21 Install inner spacer

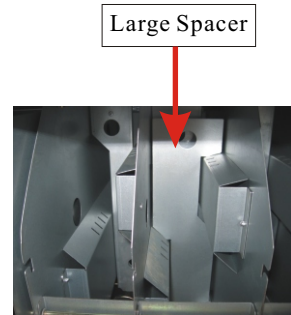


Figure 22 Install outer spacer

Spacer guide



Figure 23

Inserting the spacer



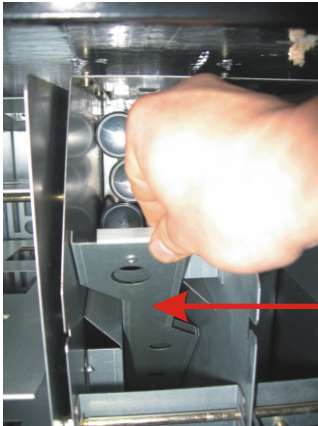
Figure 24



Figure 25



Figure 26



Close Divider

Figure 27

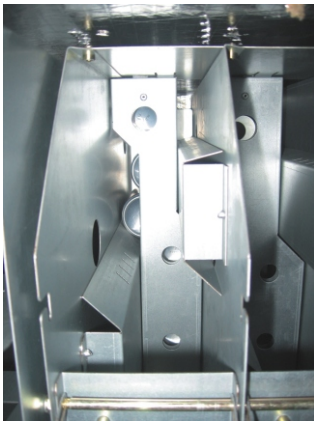


Figure 28

Second spacer inserted
into guide at front section

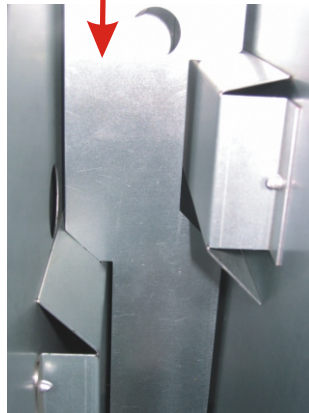


Figure 29

Cans or bottles
loaded in the front
section

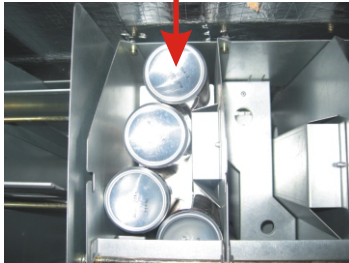


Figure 30

Close Door



Figure 31

4.2 - Displaying beverages behind the window

1. Loosen the screw to the display door and open.
2. Place the price tag for each sample beverage next to its beverage column location number (D1 D6) on the vinyl sign in front of the foam insert.
3. Place the sample drink in the foam insert on top of its proper beverage column location number (D1 D6) for display, close the display door and tighten the screw.

4.3- Loading the Coin Changer

1. Press and hold the service mode button in the electronic control unit until the LCD reads DISPLAY.
2. Press the UP button once. LCD reads TEST. Press ENTER button.
3. LCD reads COIN MECH. Press ENTER.
4. LCD reads MONEY A: 25C B: 10C C: 5C.
5. Load coins one at a time into the Coin-co coin changer located in the electronic control unit. IMPORTANT: load coins through the coin slot on the front panel, or directly from the TOP of the Coin-co coin changer (Figure 32).

Do **not** load coins through the quarter, nickel, or dime slots in the middle of the Coin-co coin changer (*Figure 32*).

6. Load at least \$5.00 worth of coins into the Coin-co coin changer, or the electronic dollar, bill acceptor will not work.
7. Each tube can hold the following quantities:
 - a. 78 Quarters
 - b. 115 Dimes
 - c. 79 Nickels
8. Press the cancel button 3 times to return the LCD to read “PLEASE ENJOY A SNACK AND A BEVERAGE”. The three buttons on the front of the dollar bill acceptor should flash green. You are now in vending mode and the machine is ready to be put into service.

NOTE:

Never input coins from the 3 side slots of the coin changer (*Figure 32*).

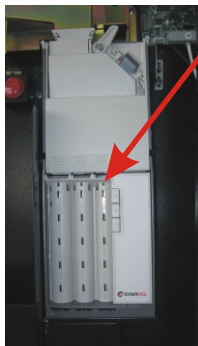


Figure 32

Never input coins here

Screws that secure the coin box

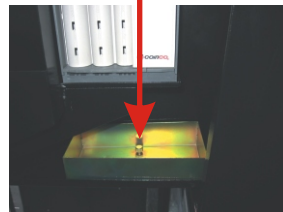


Figure 33

4.4 - Setting Prices

NOTE: Factory pre-set prices are \$ 0.75 on all drink and snack bins.

1. Press and hold the service mode button in the electronic control unit until the LCD reads DISPLAY
2. Press ENTER button. LCD reads SHOW INFO

3. Press UP button twice. LCD reads REVIEW PRICE
4. Press ENTER button. LCD reads REVIEW PRICE BIN A1 \$0.75
5. Press ENTER button. A flashing black square appears to the right of the 0.75 price
6. Press the numbers on the keypad that you wish to use for the price you wish to set for this bin location. EX: If you wish for location A1 to be set at \$1.00, press 1, then 0, then 0, then ENTER. The LCD now reads REVIEW PRICE BIN: A1 \$1.00
7. Press the DOWN button. LCD reads REVIEW PRICE BIN: A2 \$0.75
8. Repeat steps above in step 6, after setting the price on each bin, press the DOWN button to continue through bins A1- A5, B1- B5, C1-C9, and D1 through D6
9. If you wish to go back and change a bin or review a bin price, press the UP or DOWN buttons until you find the required bin number
10. When all bin pricing is set and complete, press the cancel button three times or until the LCD reads "PLEASE ENJOY A SNACK AND A BEVERAGE"

4.5 Clearing the machine memory in preparation to vend, after the initial loading of coins, snacks and beverages, and after restocking and servicing the machine.

1. Press and hold the service mode button in the electronic control unit until the LCD reads DISPLAY
2. Press ENTER button. LCD reads SHOW INFO
3. Press ENTER button. LCD reads TOTAL CASH
TOTAL CASH: \$0.XX
4. Press ENTER button. LCD reads TOTAL SALES
TOTAL SALES: \$0.XX
5. Press ENTER button. LCD reads TOTAL VENDS
TOTAL VENDS: X
6. Press ENTER button. LCD reads CLEAR ALL DATA AND RESET
BIN QUANTITIES?
7. Press YES button. LCD flashes CLEAR ING DATA! Then reads SHOW INFO
8. Press CANCEL button twice until the LCD reads "PLEASE ENJOY A SNACK AND A BEVERAGE"
9. Machine memory is now clear and the machine is ready to vend

5 SERVICE AND MAINTENANCE

5.1 General Maintenance

5.1.1 Cleaning

Clean the internal and exterior cabinet with a damp cloth. Do not use ammonia based window cleaners to clean the product display windows.

To lower the electricity costs and minimize service, it is very important to clean the condenser regularly. The condenser is located at the front of the machine at the bottom. Remove the filter in front of the condenser (*Figure 34*) , You can use compressed air or a vacuum to clean the condenser. A stiff brush can also be used, but brush lightly to prevent condenser fin damage (*Figure 35*).

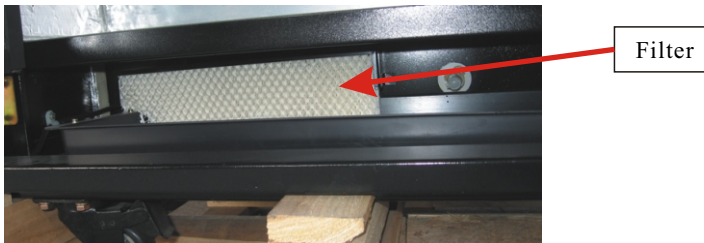


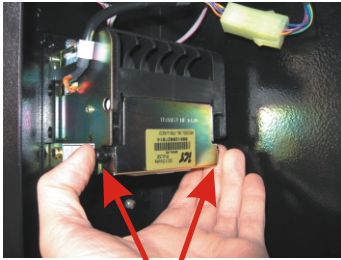
Figure 34 Filter



Figure 35 Clean the condenser

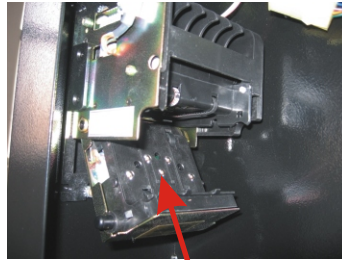
5.1.2 Clearing coin and bill validator jams

1. To clear jams on the bill validator, push the buttons on both side of the bill validator and pull down. Remove the jammed bill and clean lenses and belts with an alcohol swab (*Figures 36 and 37*).



Push Buttons to open

*Figure 36 Push buttons to open.
alcohol swab*



Clean lens and belts with
an alcohol swab

Figure 37 Clean lens and belt with

2. To clear coin jams press the coin release button.

5.2 Service and technical information

VM-750B Vending Machine is comprised of 3 subsystems; each subsystem is dedicated to perform its own function.

1. Electronic Control Unit
2. Vending Motors
3. Refrigeration unit

The following information will describe each subsystem and how to maintain and service it.

5.2.1 Electronic Control Unit

Electronic Control Unit components are mounted on the service tray and mounting plate at the side and back of the snack trays (*Figures 38, 39 and 40*). To access the Electronic Control Unit, unlock the lock at the top, and pull on the bottom or sides to slide it out away from the vending cabinet, giving you access to the service tray. To access the mounting plate containing the power supply and slave board, open the back door.

The Electronic control Unit consists of the following components.

1. LCD Display
2. Keypad
3. Keypad terminal board
4. Bill Validator
5. Coin Changer
6. Master board
7. Slave board
8. Motor Control Board
9. Service button
10. Power supply

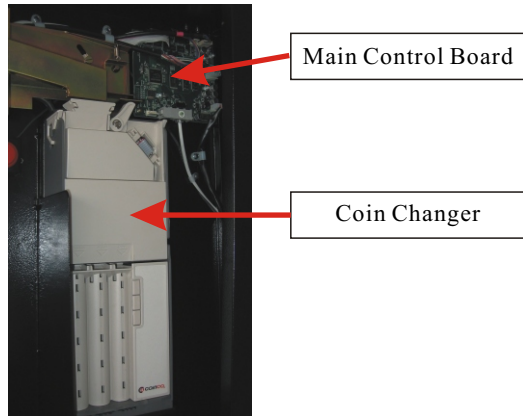


Figure 38 Components in the Electronic service tray

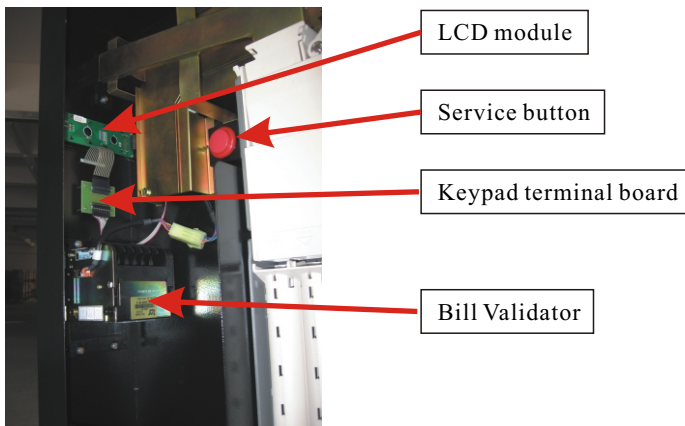


Figure 39 - Components in the Electronic service tray

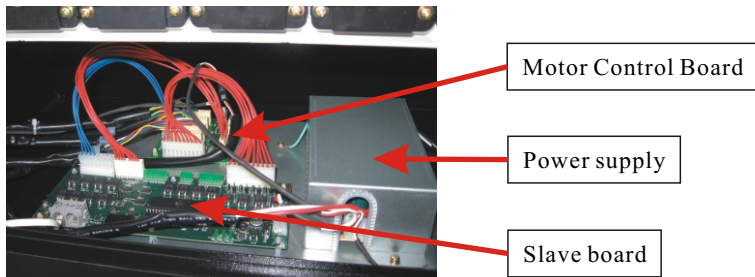


Figure 40 - Components in the rear mounting plate

All the components can be removed independently. To remove any components, follow the instructions below:

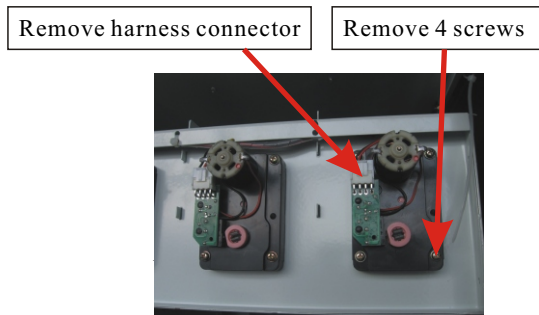
1. Unplug the Power Cord first
2. Disconnect all connectors from that component
3. Remove the mounting screws
4. Remove the component for service or replacement

5.2.2 Vending motor

The machine vends products by using a gear motor connected to a spiral.

How to remove a snack or candy motor:

1. Open the back door on the vending machine (Figure 41).
2. Select the defective motor that requires replacement.
3. Remove the harness connector and the 4 mounting screws (Figure 42).



How to remove a beverage motor:

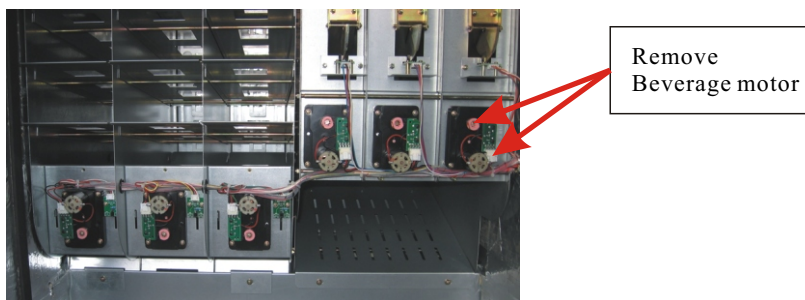
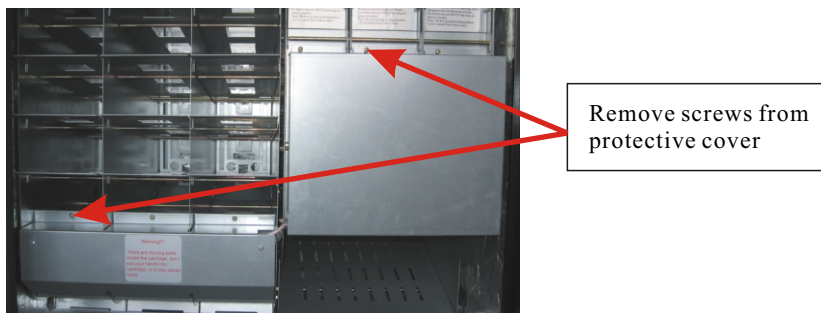
In the beverage compartment, the motors are mounted behind the protective covers.

1. Remove the protective cover (*Figure 43*).
2. Select the defective motor that requires replacement.
3. Remove the harness connector and the 4 mounting screws (*Figure 44*).

Notes:

While installing replacement motors for D1-D3, make sure to have the copper sheath aligned as shown in the picture, the copper sheath must be held in the recess of the vend plate (*Figure 45*).

The bottle holders for D4-D6 must face down at one end and face up at the other end (*Figure 46*).



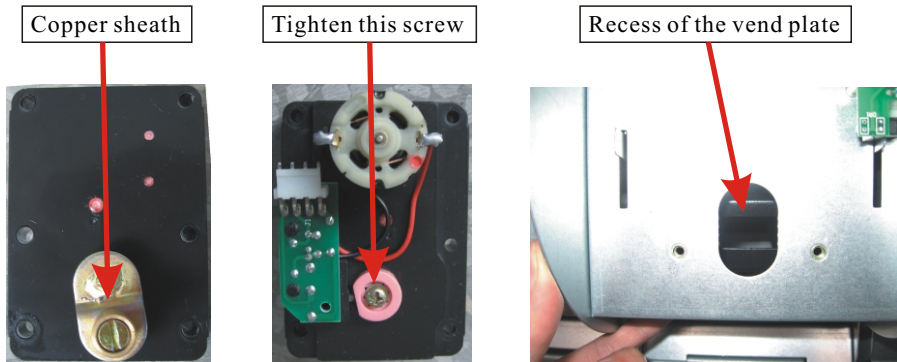


Figure 45

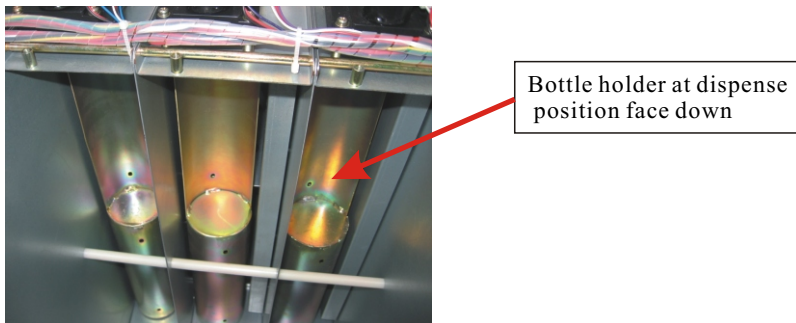


Figure 46

5.2.3 - Refrigeration unit

The refrigeration unit is located at the lower back of the machine. It is completely self-contained. You can adjust the beverage machines temperature by turning the temperature control screw clockwise (1/8" at a time) for a colder setting (Figure 47)

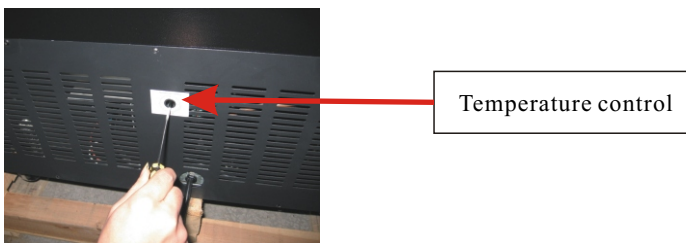


Figure 47 Temperature control

If there is a service problem: (*Figure 48*)

1. Unplug the power cord
2. Remove the protection grid plate
3. Disconnect the power plug
4. Remove the mounting screws
5. Pull the refrigeration unit out by pulling the handles toward you.

Note:

If the refrigeration units, after extended use needs to be serviced, we recommend sliding a “dull” thin blade over the cooler chamber. That will break the seal between the rubber gasket and the metal surface and allow the unit to slide out easier.

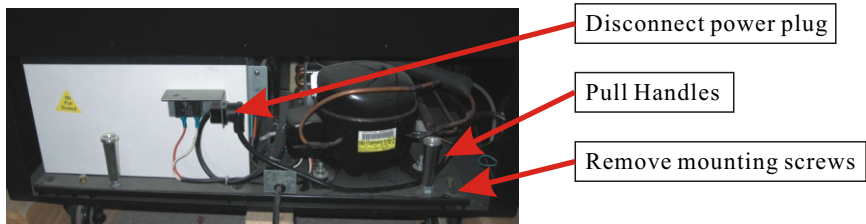


Figure 48 Removing the compressor

5.2.4 – Main color codes from the machine

Main color codes as follows:



Red code: PANTONE 485 C



black code: PANTONE Black C

5.2.5 - Electrical schematic

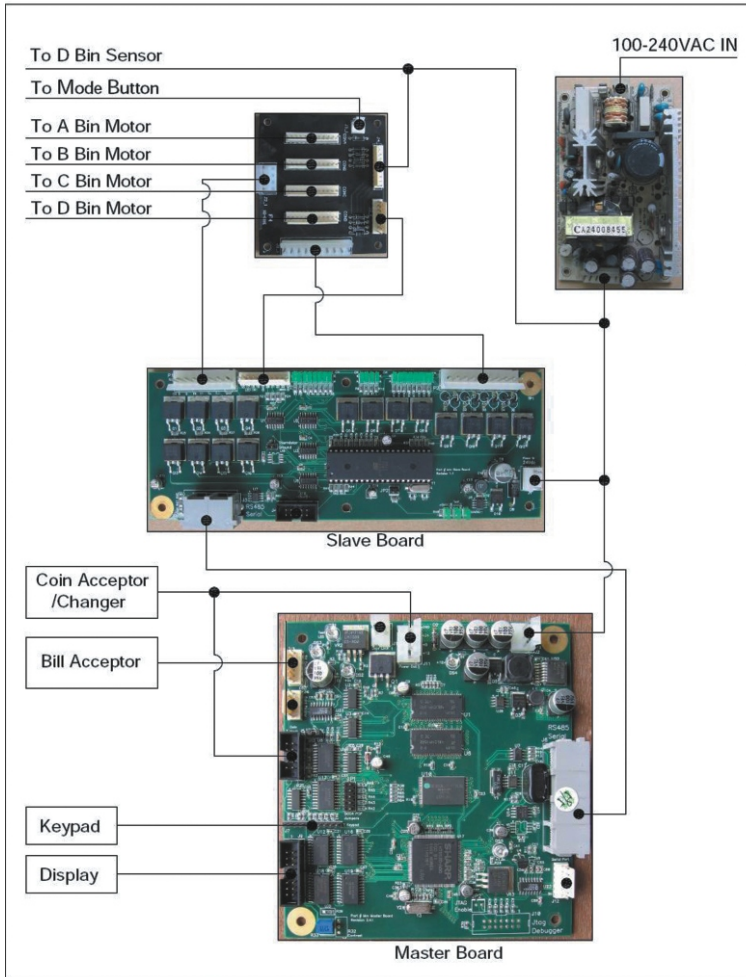


Figure 49- Control Circuit Schematic

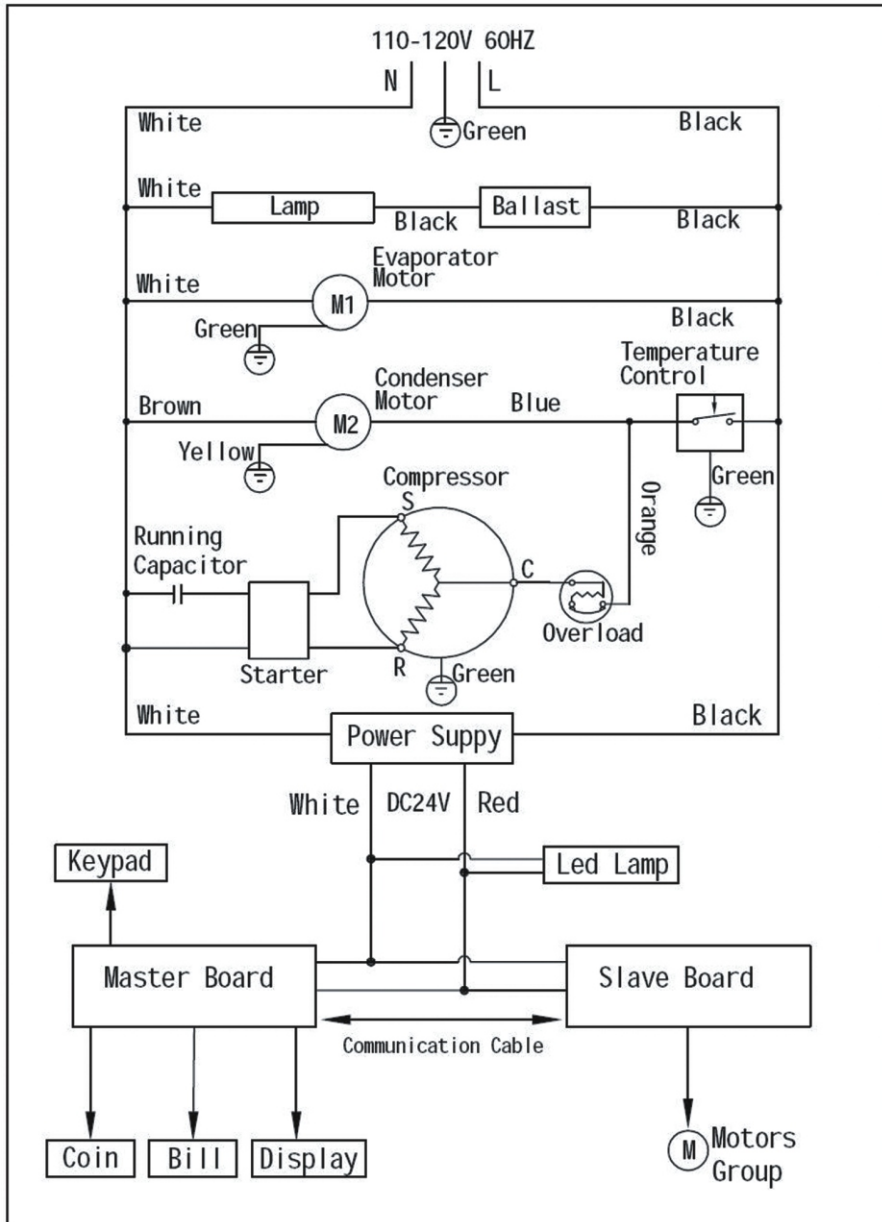


Figure 50 - Primary Electrical Schematic

WARRANTY POLICY

What is covered:

Manufacturer warrants TO THE ORIGINAL PURCHASER ONLY that the machine is free from defects in material and workmanship under normal use and service. Manufacturer's obligation under this warranty shall be limited to repair or replacement, at our plant, of any parts of the machine which shall, within one year of the date of shipment to the original purchaser, be demonstrated to be defective. The original purchaser may obtain repair or replacement of the machine under this warranty by returning the defective items or entire machine to the Manufacturer, freight prepaid.

What is not covered:

Manufacturer's warranty obligations DO NOT EXTEND TO OR INCLUDE installation expenses or difficulties resulting from failure to operate the machine in accordance with Manufacturer's instructions under competent supervision.

Special note:

Manufacturer is not responsible for any loss of income due to a machine being out of service due to a warrantable item.

This warranty is in lieu of all other warranties, expressed or implied, including the warranty of merchantability and fitness or use, and of all other obligations or liabilities on Manufacturer's part. Manufacturer neither assumes, nor authorizes any other person to assume for it, any other liability in connection with the sale of equipment manufactured by itself. This warranty shall not apply to equipment manufactured or any part thereof which is subject to accident, negligence, alteration, abuse, misuse or damage in shipment. The term "original purchaser", as used in this warranty, shall be deemed to mean that person for whom the equipments are originally installed.

Manufacturer is not liable for any incidental, consequential or other damages of any kind whatsoever, directly or indirectly, arising from the use of the equipment whether based upon theories of contract, negligence or tort.

Removing the serial number voids the warranty.

Thank you for your business.



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